

# Hydrolean


Water cooled chillers & heat pumps / Condenserless liquid chillers




R410A



WATER COOLED

 25 - 160 kW

 30 - 170 kW

LENNOX participates in the ECP programme for LCP-HP. Check ongoing validity of certificate : [www.eurovent-certification.com](http://www.eurovent-certification.com)

- # **Compact** units that can be stacked on other Hydrolean units to save space.
- # Fully enclosed units that allow **indoor or outdoor installation** and **quiet operation**.
- # Optimal access to all components **simplifies service and maintenance operations**.
- # **Versatile units** that allow operation with dry coolers or remote condensers.

## CASING & DESIGN

- # Casing made of white painted galvanised steel.
- # Removable side and rear panels.
- # Front access via dismountable doors.
- # Unit lifting and handling via the base frame.
- # Stackable unit that can be placed on top of another for better use of space (up to size 080).
- # Fully enclosed unit for indoor or outdoor installation

## THERMODYNAMIC SYSTEM

- # High efficiency screw compressors with built-in sliding valve for capacity control (inverter as an option).
- # Enhanced cooling capacity and efficiency with Economizer.
- # Screw compressor with integrated oil separator.
- # Shell and tube evaporator on air-cooled versions and flooded on water-cooled versions.
- # Aluminium microchannel condenser coil (Cooling only version).
- # High performance fans to improve efficiency and reduce noise level (EC version available as an option).
- # Brazen plate heat exchanger on each refrigerant circuit to produce hot sanitary water up to 65°C.
- # Up to three independent circuits, each equipped with electronic expansion valve.



## VERSATILITY

- # Optional version allows operation with dry coolers or remote condensers



## CONTROL

- # Climatic electronic controller and intelligent control parameters optimising part-load efficiency.
- # Integrated communication solutions offering flexibility (master/slave, Modbus, BACnet or LonWorks®).
- # DC Advanced display, equipped with a graphic screen providing access to the main user parameters, with two optional displays:
  - Remote Display
  - Service Display



## HIGH SEASONAL EFFICIENCY

- # Very high seasonal efficiency in comfort cooling and heating ( $\eta_{s,c}$  and  $\eta_{s,h}$  above 180 %, A+++ class)

**S**<sub>(A)</sub> **W**<sub>(B)</sub> **C**<sub>(C)</sub> **100**<sub>(D)</sub> **D**<sub>(E)</sub> **N**<sub>(F)</sub> **M**<sub>(G)</sub> **2**<sub>(H)</sub> **M**<sub>(I)</sub>

- (A) **S** = Hydrolean  
 (B) **W** = Water cooled  
 (C) **C** = Cooling mode - **H** = Heat pump mode - **R** = Remote condensing  
 (D) Cooling capacity in kW  
 (E) **S** = Single circuit - **D** = Dual circuits  
 (F) **N** = Non ducted  
 (G) **M** = R410A  
 (H) **2** = Revision number  
 (I) **M** = 400v/3/50Hz



## Water cooled version

## Cooling only units

Hydrolean - SWC		25	35	50	70	80	100	120	135	160
<b>Nominal thermal performances - Cooling mode</b>										
Cooling capacity <sup>(1)</sup>	kW	25,8	37,9	50,8	71,9	83,6	95,7	117,5	132,7	156,4
Total absorbed power <sup>(1)</sup>	kW	5,9	8,9	11,9	18,5	22,2	22,5	29,1	31,7	39,5
EER <sup>(1)</sup>		4,37	4,25	4,26	3,89	3,77	4,25	4,04	4,19	3,96
Comfort Application	Seasonal Energy Efficiency Ratio <sup>(2)</sup> <b>SEER</b>	5,33	5,26	5,72	5,12	5,03	5,43	5,19	5,30	5,10
	Seasonal energy efficiency <sup>(3)</sup> <b>η<sub>s,c</sub></b>	208	206	224	200	196	212	203	207	199
Process Application	Seasonal Energy Performance Ratio <sup>(4)</sup> <b>SEPR - High temperature (7°C)</b>	-	-	-	-	-	-	-	-	-
	Seasonal Energy Performance Ratio <sup>(5)</sup> <b>SEPR - Medium temperature (-8°C)</b>	4,15	4,16	3,96	3,93	3,84	4,18	4,10	4,11	4,05
<b>Nominal thermal performances - Heating mode</b>										
Heating capacity <sup>(1)</sup>	kW	-	-	-	-	-	-	-	-	-
Total absorbed power <sup>(1)</sup>	kW	-	-	-	-	-	-	-	-	-
COP <sup>(1)</sup>		-	-	-	-	-	-	-	-	-
Comfort Application	Seasonal Coefficient of Performance <sup>(6)</sup> <b>SCOP</b>	-	-	-	-	-	-	-	-	-
	Seasonal energy efficiency <sup>(7)</sup> <b>η<sub>s,h</sub></b>	-	-	-	-	-	-	-	-	-
	Seasonal efficiency class <sup>(8)</sup>	-	-	-	-	-	-	-	-	-
<b>Acoustic data</b>										
Global sound power level - Standard unit	dB(A)	69,0	71,0	72,0	74,0	75,0	75,0	76,1	78,8	81,2
<b>Electrical data</b>										
Maximum power	kW	10,3	14,8	20,5	29,6	33,9	37,6	46,7	52,3	61,7
Maximum current	A	16,8	24,6	33,4	49,2	60,3	63,8	79,6	86,0	105,3
Starting current	A	111,2	140,2	127,8	164,7	204,3	207,8	223,6	274,6	332,3
Short circuit current	kA	10	10	10	10	10	10	10	10	10
<b>Refrigeration circuit</b>										
Number of circuits		1	1	1	1	1	2	2	2	2
Number of compressors		1	1	2	2	2	3	3	3	3
Total refrigerant load - R410a	kg	3,5	4,5	6,6	7,0	7,2	12,0	12,1	15,1	15,5
<b>Condenser</b>										
Nominal water flow rate	m <sup>3</sup> /h	5,30	7,80	10,40	15,00	17,00	19,50	24,90	27,80	32,80
Nominal pressure drop	kPa	22	27	34	57	71	30	48	43	59
<b>Evaporator</b>										
Nominal water flow rate <sup>(9)</sup>	m <sup>3</sup> /h	4,40	6,50	8,60	12,60	14,40	16,50	20,60	22,70	28,00
Nominal pressure drop <sup>(9)</sup>	kPa	17	21	25	41	53	25	35	32	42
<b>Hydraulic connection</b>										
Type		Threaded male								
Diameter		1 1/2" (DN40)					2" (DN50)			

(1) EUROVENT certified data, in accordance with standard EN 14511.

**Cooling mode:** Evaporator water temperature = 12/7°C | Outdoor air temperature = 35°C / **Heating mode:** Condenser water temperature = 40/45°C | Outdoor air temperature = 7°C

(2) SEER in accordance with standard EN 14825. | (3) Following ecodesign regulation EU 2016/2281 on space cooling, normalized leaving water temperature at 7°C, in accordance with standard EN 14825. | (4) Following ecodesign regulation EU 2016/2281 on process cooling units, normalized leaving water temperature at 7°C, in accordance with standard EN 14825. |

(5) Following ecodesign regulation EU 2015/1095 on process cooling chillers, normalized leaving water temperature at -8°C, in accordance with standard EN 14825. | (6) SCOP in accordance with standard EN 14825. Heating mode performance is defined for average climate conditions. | (7) Following ecodesign regulation EU 813/2013 on space heaters, normalized leaving water temperature at 7°C, in accordance with standard EN 14825, average climate conditions. | (8) Following energy labelling regulation EU 811/2013 on space heaters. | (9) All data are at Eurovent condition. **Cooling mode:** Water temperature = 12/7°C | Condenser water = 30°C/35°C / **Heating mode:** Water temperature = 40/45°C |

Evaporator water inlet = 30/35°C. | Evaporator water outlet temperature calculated with the same water flow as in cooling mode.

# S<sub>(A)</sub> W<sub>(B)</sub> C<sub>(C)</sub> 100<sub>(D)</sub> D<sub>(E)</sub> N<sub>(F)</sub> M<sub>(G)</sub> 2<sub>(H)</sub> M<sub>(I)</sub>

- (A) **S** = Hydrolean  
 (B) **W** = Water cooled  
 (C) **C** = Cooling mode - **H** = Heat pump mode - **R** = Remote condensing  
 (D) Cooling capacity in kW  
 (E) **S** = Single circuit - **D** = Dual circuits  
 (F) **N** = Non ducted  
 (G) **M** = R410A  
 (H) **2** = Revision number  
 (I) **M** = 400v/3/50Hz



## Water cooled version

## Heat pumps units

Hydrolean - SWH		25	35	50	70	80	100	120	135	160		
<b>Nominal thermal performances - Cooling mode</b>												
Cooling capacity <sup>(1)</sup>		kW	25,5	37,6	50,3	71,6	81,8	95,0	116,5	131,9	155,8	
Total absorbed power <sup>(1)</sup>		kW	6,0	9,1	12,1	18,7	21,0	22,8	29,5	32,1	39,7	
EER <sup>(1)</sup>			4,25	4,14	4,15	3,83	3,90	4,17	3,95	4,11	3,92	
Comfort Application	Seasonal Energy Efficiency Ratio <sup>(2)</sup> <b>SEER</b>		5,32	5,23	5,76	5,13	5,03	5,55	5,22	5,25	5,12	
	Seasonal energy efficiency <sup>(3)</sup> <b>η<sub>s,c</sub></b>		%	208	204	225	200	196	217	204	205	200
Process Application	Seasonal Energy Performance Ratio <sup>(4)</sup> <b>SEPR - High temperature (7°C)</b>		-	-	-	-	-	-	-	-	-	
	Seasonal Energy Performance Ratio <sup>(5)</sup> <b>SEPR - Medium temperature (-8°C)</b>		4,16	4,14	4,00	3,93	3,82	4,19	4,09	4,11	4,03	
<b>Nominal thermal performances - Heating mode</b>												
Heating capacity <sup>(1)</sup>		kW	28,0	41,4	55,5	79,6	91,7	104,6	129,3	145,1	173,0	
Total absorbed power <sup>(1)</sup>		kW	7,5	11,1	15,1	22,7	25,3	28,3	35,8	39,2	48,0	
COP <sup>(1)</sup>			3,7	3,7	3,7	3,5	3,6	3,7	3,6	3,7	3,6	
Comfort Application	Seasonal Coefficient of Performance <sup>(6)</sup> <b>SCOP</b>		5,0	5,0	5,2	4,9	4,7	5,2	5,1	5,1	4,8	
	Seasonal energy efficiency <sup>(7)</sup> <b>η<sub>s,h</sub></b>		%	194	193	201	192	184	204	197	200	186
	Seasonal efficiency class <sup>(8)</sup>			A++								
<b>Acoustic data</b>												
Global sound power level - Standard unit		dB(A)	69,0	71,0	72,0	74,0	75,0	75,0	76,1	78,8	81,2	
<b>Electrical data</b>												
Maximum power		kW	10,3	14,8	20,5	29,6	33,9	37,6	46,7	52,3	61,7	
Maximum current		A	16,8	24,6	33,4	49,2	60,3	63,8	79,6	86,0	105,3	
Starting current		A	111,2	140,2	127,8	164,7	204,3	207,8	223,6	274,6	332,3	
Short circuit current		kA	10	10	10	10	10	10	10	10	10	
<b>Refrigeration circuit</b>												
Number of circuits			1	1	1	1	1	2	2	2	2	
Number of compressors			1	1	2	2	2	3	3	3	3	
Total refrigerant load - R410a		kg	3,5	4,5	6,9	7,4	7,6	12,3	12,3	15,5	15,9	
<b>Condenser</b>												
Nominal water flow rate		m <sup>3</sup> /h	5,30	7,80	10,40	15,00	17,00	19,50	24,90	27,80	32,80	
Nominal pressure drop		kPa	22	27	34	57	71	30	48	43	59	
<b>Evaporator</b>												
Nominal water flow rate <sup>(9)</sup>		m <sup>3</sup> /h	4,40	6,50	8,90	12,50	14,00	16,60	19,80	22,70	27,20	
Nominal pressure drop <sup>(9)</sup>		kPa	13	18	24	41	51	23	31	29	41	
<b>Hydraulic connection</b>												
Type			Threaded male									
Diameter			1 1/2" (DN40)					2" (DN50)				

(1) EUROVENT certified data, in accordance with standard EN 14511.

**Cooling mode:** Evaporator water temperature = 12/7°C | Outdoor air temperature = 35°C / **Heating mode:** Condenser water temperature = 40/45°C | Outdoor air temperature = 7°C  
 (2) SEER in accordance with standard EN 14825. | (3) Following ecodesign regulation EU 2016/2281 on space cooling, normalized leaving water temperature at 7°C, in accordance with standard EN 14825. | (4) Following ecodesign regulation EU 2016/2281 on process cooling units, normalized leaving water temperature at 7°C, in accordance with standard EN 14825. | (5) Following ecodesign regulation EU 2015/1095 on process cooling chillers, normalized leaving water temperature at -8°C, in accordance with standard EN 14825. | (6) SCOP in accordance with standard EN 14825. Heating mode performance is defined for average climate conditions. | (7) Following ecodesign regulation EU 813/2013 on space heaters, normalized leaving water temperature at 7°C, in accordance with standard EN 14825, average climate conditions. | (8) Following energy labelling regulation EU 811/2013 on space heaters. | (9) All data are at Eurovent condition. **Cooling mode:** Water temperature = 12/7°C | Condenser water = 30°C/35°C / **Heating mode:** Water temperature = 40/45°C | Evaporator water inlet = 30/35°C. | Evaporator water outlet temperature calculated with the same water flow as in cooling mode.

## S<sub>(A)</sub> W<sub>(B)</sub> C<sub>(C)</sub> 100<sub>(D)</sub> D<sub>(E)</sub> N<sub>(F)</sub> M<sub>(G)</sub> 2<sub>(H)</sub> M<sub>(I)</sub>

- (A) **S** = Hydrolean
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- (D) Cooling capacity in kW
- (E) **S** = Single circuit - **D** = Dual circuits
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- (G) **M** = R410A
- (H) **2** = Revision number
- (I) **M** = 400v/3/50Hz



### Water cooled version

### Cooling only units

Hydrolean - SWR		25	35	50	70	80	100	120	135	160
<b>Nominal thermal performances - Cooling mode</b>										
Cooling capacity <sup>(1)</sup>	kW	23,9	35,3	47,3	68,2	80,1	89,4	110,9	124,2	148,2
Total absorbed power <sup>(1)</sup>	kW	6,8	10,1	13,7	20,5	24,7	25,4	32,3	35,9	43,7
EER <sup>(1)</sup>		3,51	3,50	3,45	3,33	3,24	3,52	3,43	3,46	3,39
Comfort Application	Seasonal Energy Efficiency Ratio <sup>(2)</sup> <b>SEER</b>	-	-	-	-	-	-	-	-	-
	Seasonal energy efficiency <sup>(3)</sup> <b>η<sub>s,c</sub></b>	%	-	-	-	-	-	-	-	-
Process Application	Seasonal Energy Performance Ratio <sup>(4)</sup> <b>SEPR - High temperature (7°C)</b>	-	-	-	-	-	-	-	-	-
	Seasonal Energy Performance Ratio <sup>(5)</sup> <b>SEPR - Medium temperature (-8°C)</b>	-	-	-	-	-	-	-	-	-
<b>Nominal thermal performances - Heating mode</b>										
Heating capacity <sup>(1)</sup>	kW	-	-	-	-	-	-	-	-	-
Total absorbed power <sup>(1)</sup>	kW	-	-	-	-	-	-	-	-	-
COP <sup>(1)</sup>		-	-	-	-	-	-	-	-	-
Comfort Application	Seasonal Coefficient of Performance <sup>(6)</sup> <b>SCOP</b>	-	-	-	-	-	-	-	-	-
	Seasonal energy efficiency <sup>(7)</sup> <b>η<sub>s,h</sub></b>	%	-	-	-	-	-	-	-	-
	Seasonal efficiency class <sup>(8)</sup>		-	-	-	-	-	-	-	-
<b>Acoustic data</b>										
Global sound power level - Standard unit	dB(A)	69,0	71,0	72,0	74,0	75,0	75,0	76,1	78,8	81,2
<b>Electrical data</b>										
Maximum power	kW	10,3	14,8	20,5	29,6	33,9	37,6	46,7	52,3	61,7
Maximum current	A	16,8	24,6	33,4	49,2	60,3	63,8	79,6	86,0	105,3
Starting current	A	111,2	140,2	127,8	164,7	204,3	207,8	223,6	274,6	332,3
Short circuit current	kA	10	10	10	10	10	10	10	10	10
<b>Refrigeration circuit</b>										
Number of circuits		1	1	1	1	1	2	2	2	2
Number of compressors		1	1	2	2	2	3	3	3	3
Total refrigerant load - R410a	kg	Nitrogen charge								
<b>Condenser</b>										
Nominal water flow rate	m <sup>3</sup> /h	-	-	-	-	-	-	-	-	-
Nominal pressure drop	kPa	-	-	-	-	-	-	-	-	-
<b>Evaporator</b>										
Nominal water flow rate <sup>(9)</sup>	m <sup>3</sup> /h	4,10	6,10	8,20	11,80	13,80	15,40	19,10	21,40	25,60
Nominal pressure drop <sup>(9)</sup>	kPa	12	16	20	37	48	20	29	26	36
<b>Hydraulic connection</b>										
Type		Threaded male								
Diameter		1 1/2" (DN40)					2" (DN50)			

(1) EUROVENT certified data, in accordance with standard EN 14511.

**Cooling mode:** Evaporator water temperature = 12/7°C | Outdoor air temperature = 35°C / **Heating mode:** Condenser water temperature = 40/45°C | Outdoor air temperature = 7°C

(2) SEER in accordance with standard EN 14825. | (3) Following ecodesign regulation EU 2016/2281 on space cooling, normalized leaving water temperature at 7°C, in accordance with standard EN 14825. | (4) Following ecodesign regulation EU 2016/2281 on process cooling units, normalized leaving water temperature at 7°C, in accordance with standard EN 14825. | (5) Following ecodesign regulation EU 2015/1095 on process cooling chillers, normalized leaving water temperature at -8°C, in accordance with standard EN 14825. | (6) SCOP in accordance with standard EN 14825. Heating mode performance is defined for average climate conditions. | (7) Following ecodesign regulation EU 813/2013 on space heaters, normalized leaving water temperature at 7°C, in accordance with standard EN 14825, average climate conditions. | (8) Following energy labelling regulation EU 811/2013 on space heaters. | (9) All data are at Eurovent condition. **Cooling mode:** Water temperature = 12/7°C | Condenser water = 45°C.



**Water cooled version**

**Cooling only units**

Hydrolean		25	35	50	70	80	100	120	135	160
A	mm	802			1470			1470		
B		502			645			645		
C		815			854			1705		
<b>Weight of standard units</b>										
Basic unit - SWC	kg	176	249	333	378	396	606	617	739	760
Basic unit - SWH	kg	178	251	338	385	404	614	625	747	771
Basic unit - SWR	kg	155	196	293	314	321	499	510	600	621

